

1 (December 2, 2002)

2 **Fabric Pad Bearing**

3 The fabric pad bearing consists of an upper unit and a lower unit. The
4 upper unit includes a stainless steel sheet and either a single sole plate
5 or upper and lower sole plates, as shown in the Plans. The lower unit
6 includes a polytetrafluorethylene (PTFE) sheet, a steel backing plate,
7 and a preformed fabric pad, and may also include a masonry plate, as
8 shown in the Plans. Lower unit components of transverse restrainer
9 bearings shall be as shown in the Plans. The upper and lower units
10 shall be supplied by a single bearing manufacturer.

11
12 **Shop Drawings**

13 The Contractor shall submit shop drawings to the Engineer for
14 approval in accordance with Section 6-03.3(7). These drawings
15 shall include but not be limited to the following information:

- 16
17 1. Plan and elevation of the bearing showing dimensions
18 and tolerances.
19
20 2. Complete details of all components and sections showing
21 all materials incorporated into the bearing.
22
23 3. All AASHTO, ASTM or other material designations.
24
25 4. Bearing manufacturer's recommendations and
26 procedures for bearing assembly shipment and storage.
27

28 The Contractor shall not begin fabricating the fabric pad bearings
29 until receiving the Engineer's approval of the shop drawings.
30

31 **Flatness and Manufacturing Tolerances**

32 Flatness of bearing surfaces shall be determined by the following
33 method:

- 34
35 1. A precision straightedge, longer than the nominal
36 dimension to be measured shall be placed in contact with
37 the surface to be measured as parallel to it as possible.
38
39 2. A feeler gauge having an accuracy equal to the tolerance
40 allowed ± 0.0254 millimeters, shall be selected and
41 inserted under the straightedge.
42
43 3. Surfaces are acceptable for flatness if the feeler gauge
44 does not pass under the straightedge.
45
46 4. In determining the flatness, the straightedge may be
47 located in any position on the surface being measured.
48

49 Flatness tolerances shall be defined as follows:

- 50
51 1. Class A tolerance = $0.0005 \times \text{nominal dimension}$
52

1	2.	Class B tolerance = 0.001 x nominal dimension
2		
3	3.	Class C tolerance = 0.01 x nominal dimension
4		
5		(Nominal dimension shall be taken as the actual dimension of
6		the plate or sheet under the straightedge, in millimeters.)
7		
8	Manufacturing tolerances for the bearings are as follows:	
9		
10	PTFE Sheet	
11	Plan dimensions:	Total nominal design area -0, +3mm
12	Thickness:	-0, +0.397mm
13	Flatness:	Class B tolerance, both surfaces
14		
15	Stainless Steel Sheet	
16	Plan dimensions:	-0, +4.76mm
17	Flatness:	Class B tolerance, both surfaces
18		
19	Sole Plate	
20	Plan dimensions:	-0, +4.76mm
21	Thickness:	-1.59mm, +4.76mm
22	Flatness:	Class B tolerance, side in contact
23		with the Stainless Steel or sole plate
24		Class C tolerance, side in contact
25		with epoxy gel, grout, or concrete
26		
27	Steel Backing Plate	
28	Plan dimensions:	-0, +4.76mm
29	Thickness:	-0, +4.76mm
30	Width and length	
31	of recess:	-0, +1.59mm, of PTFE sheet size
32	Flatness:	Class B tolerance, both surfaces
33		
34	Fabric Pad	
35	Plan dimension:	-0, +4.76mm
36	Thickness:	-1.59mm, +4.76mm
37	Surface finish:	For preformed fabric pads fabricated
38		from multiple layers, the vertical face
39		shall be free of visible horizontal
40		displacement between the individual
41		layers.
42		
43	Masonry Plate & Bars	
44	Plan dimension:	-0, +4.76mm
45	Thickness:	-0, +4.76mm
46	Flatness:	Class B Tolerance, side in contact
47		with masonry plate or bars.
48		Class C tolerance,
49		free side or side in contact with
50		grout.
51		
52	Overall Height	

Total thickness: -0, +10 percent

Bearing Component Assembly, Shipping, and Storage

The stainless steel sheet shall be seal welded all around to the sole plates using the gas tungsten-arc welding process (GTAW) in accordance with applicable AWS recommended practices. The seal weld shall not protrude beyond the surface of the stainless steel. The stainless steel sheet shall be clamped down to have full contact with the sole plate during welding.

The lower contact surface of the PTFE sheet shall be bonded to the steel backing plate with epoxy specified by the PTFE manufacturer.

All exposed steel plate surfaces, including the stainless steel sheet to sole plate weld but excluding stainless steel surfaces, shall be painted in accordance with Section 6-03.3(30) as supplemented in these Special Provisions.

The Contractor shall protect the bearing assemblies from all damage, and exposure to the elements, during shipment and storage prior to installation in accordance with the manufacturer's recommendations and procedures listed in the shop drawings as approved by the Engineer.

Bearing Assembly Field Inspection and Installation

Field inspection of a representative number of bearing assemblies will be performed by the Engineer. The Contractor shall provide a clean, dry, and enclosed area at the site, spacious enough for the field inspection activities. The Engineer will identify the bearing assemblies to be inspected and the Contractor shall do all the necessary work to allow the Engineer to inspect the bearing assemblies.

The sliding surfaces shall be finished true, lubricated and installed level, or installed as shown in the Plans for transverse restrainer bearings.

A thin uniform film of silicone grease shall be applied to the entire PTFE sheet before installation.

For cast-in-place concrete superstructures, the fabric pad bearing upper unit shall be anchored to the structure as shown in the Plans. For precast concrete superstructures with fabric pad bearing upper units with upper and lower sole plates, the upper sole plate shall be cast into and anchored to the precast concrete member as shown in the Plans.

The upper units of fabric pad bearings for steel superstructures, and the lower sole plate assemblies for precast concrete superstructures shall be set with epoxy gel as specified below just before setting the superstructure in place.

1
2 The sole plate top surface in contact with the epoxy gel shall
3 receive a thin uniform film of silicone grease, to prevent bonding to
4 the epoxy gel. The anchor bolts and insert threads shall be
5 greased to prevent bonding and allow future removal. The
6 Contractor shall apply the epoxy gel by troweling it into the
7 concrete recess, or onto the bottom of the steel superstructure or
8 upper sole plate surface, and immediately bolt the upper unit of the
9 bearing in place to obtain a level surface. Before the epoxy gel
10 has cured, the superstructure shall be set in place, squeezing out
11 excess epoxy gel while filling the entire recess. Excess epoxy and
12 grease shall be removed immediately. Special care shall be
13 exercised at all times to ensure protection of the stainless steel
14 and PTFE surfaces from coming in contact with concrete or any
15 other foreign matter. After the epoxy gel has cured, the anchor
16 bolts shall be tightened to snug tight.
17
18 The grout pad, and masonry plate (when shown in the Plans), shall
19 be installed level. When shown with a masonry plate, the grout
20 pad shall be pressure installed starting at the middle of the
21 masonry plate.
22
23 All forms and debris that tend to interfere with the free action of the
24 bearing assemblies shall be removed at the time falsework and
25 forms are removed.